



## UNITED STATES PATENT AND TRADEMARK OFFICE

AW  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,378	02/06/2006	Piotr Szwakowski	51535/AW/T535	9177

23363 7590 09/24/2007  
CHRISTIE, PARKER & HALE, LLP  
PO BOX 7068  
PASADENA, CA 91109-7068

CASE # 51535 ACTION 3 Mon OA  
REMINDER 12/24/07  
DRAFTING 3/29/08

RECEIVER

SEP 26 2007

Christie, Parker & Hale, LLP

EXAMINER	LYONS, MICHAEL A
ART UNIT	PAPER NUMBER
2877	

MAIL DATE	DELIVERY MODE
09/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

3 mo 10/24/07 1/24/08  
11/24/07 2/24/08  
12/24/07 3/24/08  
DK  
JG

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/536,378	SZWAYKOWSKI ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Michael A. Lyons	2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address.--

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 April 2007.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 May 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

Claims 3-8, 10-11, and 14 objected to because of the following informalities: the claims all have formatting issues that leave large gaps between words within the claim. Appropriate correction is required.

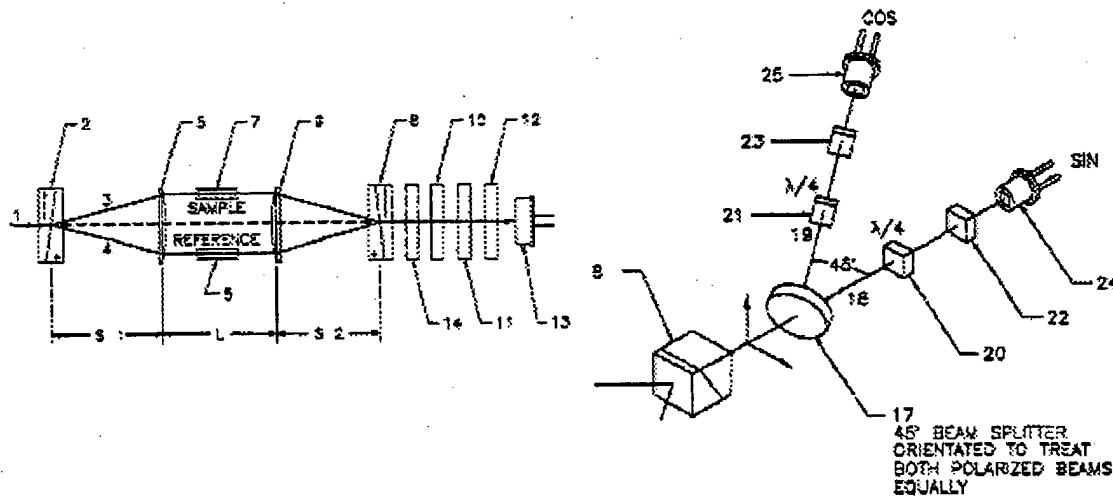
### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-2, 4-10, 12, and 15-17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Janik et al (6,128,080).**



Regarding claim 1, Janik (Figs. 1 and 7) discloses an assembly comprising a beamsplitter 17 configured to receive an incidental beam and to output exit beams 18, 19; a plurality of imaging modules, each module positioned to receive a respective exit beam and each module

Art Unit: 2877

having a quarter wave plate 20 and 21, a polarizer 22 and 23, and an image sensor 24 and 25, wherein each module is configured such that said respective exit beam encounters the quarter wave plate and polarizer so as to form an interferogram on the image sensor (since the light striking the beam splitter is a combination of light 7 passing through a sample and light 6 passing through a reference cell, an interferogram will form on the image sensor), and wherein each polarizer of a respective imaging module has a different rotation orientation from polarizers of other imaging modules for acquiring said phase-shifted interferograms (see Col. 13, lines 29-31).

As for claim 2, the incident beam on beamsplitter 17 is formed by two wavefronts 3, 4 with mutually orthogonal polarization (see Col. 6, line 62).

As for claims 4-8 see Figure 7 and Column 13, lines 22-63.

Regarding claim 9, Janik (Figs. 1 and 7) discloses an assembly comprising a beamsplitter 17 configured to receive two superimposed orthogonally polarized beams (see beams 3 and 4 from Figure 1), the beamsplitter having surfaces to split said beams into at least a selected plurality of exit beams (see beams 18 and 19 in Figure 7), each of which contains an equal portion of each of said two superimposed orthogonally polarized beam (beamsplitter 17 is a 45° beamsplitter orientated to treat both polarized beams equally, as per Figure 7); imaging modules of said selected plurality, each positioned to receive one of the exiting beams, each having a polarizer 22 and 23 and an image sensor 24 and 25, the polarize positioned between the beamsplitter and image sensor and having a selected rotation orientation different from other polarizers for enabling said assembly to acquire said phase-shifted interferograms (see Col. 13, lines 29-31; also, since the light striking the beam splitter is a combination of light 7 passing through a sample and light 6 passing through a reference cell, an interferogram will form on the

Art Unit: 2877

image sensor); wherein the assembly is configured such that each of the exit beams travels a substantially equal physical path length to arrive at said imaging sensors (see Col. 13, lines 22-63).

As for claim 10, Janik discloses quarter wave plates 20 and 21.

Regarding claim 12, Janik (Figs. 1 and 7) discloses an assembly comprising a beamsplitter 17 configured to receive a pair of incidental test and reference beams (beam 3 passing through sample 7 and beam 4 passing through reference 6 in Figure 1) in mutually orthogonal states of polarization (see Col. 6, line 62) and to output at least two pairs of exit test and reference beams 18, 19 while preserving said mutually orthogonal states of polarization (beamsplitter 17 is a 45° beamsplitter orientated to treat both polarized beams equally, as per Figure 7); means 20, 21 for arranging a first common state of polarization between one pair of beams, means 22, 23 for arranging a second common state of polarization between another pair of beams; at least two image sensors 24, 25 for imaging two interferograms from said two pairs of test and reference beams; whereby a first and second common state of polarizations are phase-shifted for enabling said assembly to acquire said phase-shifted interferograms (see Col. 6, line 55 – Col. 7, line 15 and Col. 13, lines 22-63).

As for claims 15 and 16 (as dependent upon claims 1 and 10), Janik discloses beamsplitter 17, and a pair of imaging modules (see Figure 7).

As for claim 17, see Col. 6, line 62.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 3, 11, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janik et al (6,128,080).**

As for claim 3, Janik discloses the claimed invention except for the front-end assembly being a Fizeau interferometer. It would have been obvious, however, to one having ordinary skill in the art at the time the invention was made to substitute the Mach-Zehnder type interferometer of Figure 1 for a Fizeau interferometer, since the examiner takes Official Notice of the equivalence of the Mach-Zehnder and Fizeau interferometers, and the selection of one interferometer in lieu of another would be within the level of ordinary skill in the art.

As for claim 11, Janik discloses the claimed invention except for the use of a quarter wave plate before the beamsplitter. Official Notice is taken, however, as to the well known use of quarter wave plates for providing a known rotation of the polarization of an incoming light beam in interferometry, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a quarter wave plate to the device of Janik, the

motivation being that the quarter wave plate will allow for a known polarization rotation to be applied to the incoming light beam before being split and imaged, allowing for more ideal results.

Regarding claims 13 and 14, Janik (Figs. 1 and 7) discloses an assembly comprising a beamsplitter 17 configured with an input to receive incidental beams, and a selected plurality of outputs for exit beams 18 and 19; a selected plurality of imaging modules, each module positioned relative to one of the outputs to receive an exiting beam 18 and 19 and each module having a quarter wave plate 20 and 21, a polarizer 22 and 23, and a camera 24 and 25, wherein in each imaging module the quarter wave plate is positioned between the beamsplitter and the camera (see Figure 7), and the polarizer is positioned between the quarter wave plate and the camera (see Figure 7), and further wherein each polarizer has a different rotation orientation relative to said other polarizers for acquiring phase-shifted interferograms (see Col. 13, lines 29-31; also, since the light striking the beam splitter is a combination of light 7 passing through a sample and light 6 passing through a reference cell, an interferogram will form on the image sensor).

Janik, however, fails to disclose where the beamsplitter and the modules, and the elements within each module (claim 14), are fixedly connected to each other.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the individual elements fixedly connected to each other, since it has been held that the use of a one piece, integral construction in lieu of multiple individual elements would merely be a matter of obvious design choice. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

As for claims 15 and 16 (as dependent upon claim 13), Janik discloses beam splitter 17, and a pair of imaging modules (see Figure 7).

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0095264 to Ruchet.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael A. Lyons  
Patent Examiner  
September 17, 2007

<b>Notice of References Cited</b>		Application/Control No.	Applicant(s)/Patent Under Reexamination '10/536,378 SZWAYKOWSKI ET AL.	
		Examiner Michael A. Lyons	Art Unit 2877	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,128,080	10-2000	Janik et al.	356/491
*	B	US-2003/0095264	05-2003	Ruchet, Bernard	356/491
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.